UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF INDIANA
EVANSVILLE DIVISION

BERRY PLASTICS CORPORATION,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	3:10-cv-00076-RLY-WGH
	)	
INTERTAPE POLYMER CORPORATION,	)	
	)	
	)	
Defendant.	)	

ENTRY ON BERRY PLASTICS CORPORATION'S RENEWED MOTION FOR JUDGMENT AS A MATTER OF LAW THAT U.S. PATENT NO. 7,476,416 IS INVALID AS OBVIOUS

The court held a jury trial in this patent infringement lawsuit between Berry Plastics Corporation and Intertape Polymer Corporation from November 3, 2014, to November 17, 2014. The jury found, *inter alia,* that Intertape's United States Patent No. 7,476,416 was not obvious. (*See generally* Verdict Form, Filing No. 378). On December 15, 2014, Berry renewed its motion for judgment as a matter of law under Federal Rule of Civil Procedure 50(b) that the '416 patent is invalid as obvious. The parties orally argued their case on August 26, 2015. For the reasons set forth below, the court **GRANTS** Berry's motion.

I. Background

Intertape is the owner by assignment of the '416 patent issued on January 13, 2009. (ITX-66, '416 patent). The asserted ›416 patent describes and claims a continuous process for preparing adhesive tape from raw materials, including non-

thermoplastic elastomers (i.e., natural rubber) and tackifying resins, using a planetary roller extruder ("PRE") that includes planetary mixing spindles with back-cut helical flights. The named inventors are John K. Tynan, Jr., Richard W. St. Coeur, David M. Kovach, and Thomas Lombardo. ('416 patent; Filing No. 391, Tynan Tr. at 36). At the time the patent was issued, the inventors were employees of Intertape. (*Id*.).

Intertape first became acquainted with a PRE when it obtained a copy of a German patent owned by one of Intertape's competitors, Beiersdorf[1] AG. (*Id*. at 38, 42). In April 2002, Kovach and a colleague prepared an English translation of the patent. (Kovach Tr. at 42-43; St. Coeur Tr. at 7-8). At that time, Intertape compounded natural rubber through a Banbury or batch process, which compounds natural rubber one batch at a time. (Tynan Tr. at 20 (describing the batch process as "kind of like making a cake")). Intertape decided to explore a new method of compounding natural rubber using a continuous, as opposed to a batch, process. (*Id*. at 30). Intertape considered a twin screw extruder, but later abandoned that idea because a twin screw extruder produced too much heat, and degraded the rubber. (*Id*. at 30-35; *see also id*. at 31 (describing a twin-screw extruder as having two connected barrels with two co-rotating screws)).

On January 14, 2003, the Beiersdorf patent issued in the United States as United States Patent No. 6,506,447 ("'447 patent"). (ITX-7, '447 patent). It generally claims a

[1] Its subsidiary, Tesa SE, is a leading manufacturer of adhesive tape and is known as the "3M of Europe." (Tynan Tr. at 46).

continuous (as opposed to a batch) process for producing a pressure-sensitive adhesive from non-thermoplastic elastomers in a PRE.

Through research, Intertape discovered that Battenfeld Extrusionstechnik GmbH, a German multi-national manufacturer of mixing equipment, designed and manufactured PREs. (Tynan Tr. at 39). Intertape contacted Battenfeld representatives and learned that a PRE had "ten times the thermal-exchange capability of a twin-screw extruder . . . , so [Intertape] was intrigued." (*Id*. at 43). Therefore, in April 2003, Tynan, St. Coeur, and Kovach traveled to Germany to fully explore the advantages of a PRE for compounding natural-rubber-based adhesives without the use of solvent. (*Id*. at 41, 62; Kovach Tr. at 14). One of Intertape's goals of the trials was to invalidate the '447 patent because Intertape saw it as an "obstacle." (Tynan Tr. at 56; St. Coeur Tr. at 59).

During the trials of Battenfeld's PRE, Intertape used Battenfeld's test setup, which included standard spindles. (St. Coeur Tr. 13, 55; Kovach Tr. at 55; Tynan Tr. at 64, 198). Kovach testified they went there "for a free trial they were gracious enough to offer us, and so we were going to let them demonstrate their equipment for us." (Kovach Tr. at 56). Intertape discovered that it "could take natural rubber, tackifying resin, extender, masticate[2] the rubber in the PRE, produce an adhesive, and it had an exceptional balance of adhesion and cohesive strength." (Tynan Tr. at 65).

Representatives of Battenfeld introduced Intertape to different types of spindles for use in a PRE. (St. Coeur Tr. at 56-57; *see also* ITX-5, St. Coeur's European Trip

[2] To masticate rubber means to break down the molecular weight of the material. *See, e.g.,* '447 patent, col. 7, ll: 33-34.

Report). Intertape learned from Battenfeld that "you can achieve different mixing effects when you go from a spindle, full-flight spindle without notches, to a spindle with notches." (Tynan Tr. at 43-44). Tynan explained that "when you put notches in them, you get some back-slip of the material; you get some flow-back of the material. And the material that flows back stays in the compounding zone longer than the material that gets moved forward" resulting in "more mastication." (*Id*. at 44). These notched spindles were known as "back-cut" spindles. (Tynan Tr. at 43-44; St. Coeur Tr. at 57 ("[T]hey said you can cut notches into the spindle for different mixing dynamics.")).

Intertape identified Entex Rust & Mitschke GmbH as a manufacturer of PREs from reading the '447 patent. (Kovach Tr. at 21). In June 2003, St. Coeur, Kovach, and Lombardo attended a National Plastics Expo in Chicago, Illinois, and met Entex sales representative Michael Batton. (*Id.* at 21, 23). Kovach determined that Entex was a suitable alternative supplier of PRE technology to Battenfeld, and that Entex could handle equipment trials with solvents at its lab. (*Id*. at 25). The ability to use solvents was important to Intertape because Intertape used solvents in several of its manufacturing plants. (*Id*. at 31).

In November 2003, Intertape conducted trials at Entex's facility in Bochum, Germany. (Tynan Tr. at 69; St. Coeur Tr. at 26; Kovach Tr. at 28). In preparation for the trials, Intertape and Entex discussed the features of the Entex PRE and the type of spindles that Entex could make available to Intertape for testing. (Kovach Tr. at 36-38). In addition, on August 29, 2003, Entex sent Intertape a series of emails describing the

features of its PRE and photographs of its Noppenspindel. (Kovach Tr. at 38; PTX-24; PTX-140).

On November 24, 2003, Intertape filed a provisional application with the PTO that included a photograph of a Noppenspindel. (ITX-2; Tynan Tr. at 74; Levy Tr. at 5, 50). One year later, Intertape filed non-provisional application no. 10/997,827 entitled "Process for preparing adhesive using planetary extruder." (ITX-1; Tynan Tr. at 163). The '827 patent application claimed priority to the provisional application.

In 2008, during the prosecution of the '827 patent application (which later became the '416 patent), the patent examiner rejected claims 1-33 as obvious over the Beiersdorf patents[3] (Beiersdorf, U.S. Patent No. 6,506,447 and Burmeister, U.S. Patent No. 6,780,271), taken in view of Hawrylko (U.S. Patent No. 5,536,462). (ITX-1 at 461-62; Levy Tr. at 100-103). Intertape responded by arguing that the Beiersdorf patents "teach away" from mastication, whereas Intertape's process purposefully sought to increase mastication using back-cut spindles. (ITX-1 at 488-90; Levy Tr. at 21-22). Intertape also argued that Hawrylko disclosed the use of back-cut mixing elements in a twin screw extruder, but did not teach the production of a pressure-sensitive adhesive in a PRE from a non-thermoplastic elastomer. (ITX-1 at 488; Levy Tr. at 22-23). The examiner agreed that Intertape's claimed process was not obvious, and allowed the claims of the '416 patent to issue. (ITX-1 at 497).

[3] The two Beiersdorf patents have essentially the same disclosure, as they are from the same company. (Levy Tr. at 15).

On May 13, 2010, Berry filed the present declaratory judgment action against Intertape on grounds that the '416 patent is invalid because, *inter alia,* it is obvious under 35 U.S.C. § 103.

II. Standard of Review

If a motion for judgment as a matter of law under Federal Rule of Civil Procedure 50(a) at the close of all the evidence is not granted, the movant may renew the motion. Fed. R. Civ. P. 50(b). The court applies the law of the regional circuit, in this case, the Seventh Circuit. *ABT Sys., LLC v. Emerson Elec. Co.*, No. 2014-1618, -- Fed. Cir. -- , 2015 WL 4924160, at *3 (Fed. Cir. Aug. 19, 2015) (citing *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1328 (Fed. Cir. 2008)). Under Seventh Circuit law, a district court may enter judgment against a party who has been fully heard on an issue during a jury trial if "'a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.'" *Passananti v. Cook Cnty.*, 689 F.3d 655, 659 (7th Cir. 2012) (quoting Fed. R. Civ. P. 50(a) (motion for judgment as a matter of law), (b) renewed motion for judgment as a matter of law)). In resolving a Rule 50(b) motion, the court construes the evidence strictly in favor of the party who prevailed before the jury and examines the evidence to determine whether the jury's verdict could reasonably be based on the evidence. *Id.* "'Credibility determinations, the weighing of the evidence, and the drawing of legitimate inferences from the facts are jury functions, not those of a judge.'" *Reeves v. Sanderson Plumbing Prods., Inc.*, 530 U.S. 133, 150 (2000) (quoting *Anderson v. Libery Lobby*, 477 U.S. 242, 255 (1986)). "Thus, although the court should

review the record as a whole, it must disregard all evidence favorable to the moving party that the jury [was] not required to believe." *Id.* at 150-51.

III. Waiver

On November 14, 2014, Berry orally moved for judgment as a matter of law under Federal Rule of Civil Procedure 50(a) on its defense of obviousness based on the '447 patent (also known as the "Beiersdorf" or "Hirsch" patent) in combination with the back-cut spindle claimed in the '416 patent. (*See* Filing No. 407, 11/14/2014 Rule 50 Tr. at 6-7). Berry did not *specifically* identify any other prior art or describe any other combinations of prior art references. (*See id.*). In its post-verdict Rule 50(b) motion, Berry raises a number of prior art references or combinations of references, including: (1) Japanese Patent Application 11-216764 ("Sekisui") (PTX-264); (2) "Rubber – the tailor-made material, Compounding of Elastomer Masses in a Planetary Roller Extruder" ("DIK Paper") (PTX-37); (3) German Patent No. DE 43 08 098 ("Entex '098 patent") (PTX-291); (4) United States Patent No. 5,539,033 ("3M patent") (PTX-266); (5) Emails sent from Entex to Intertape on August 29, 2003 (PTX-24 and PTX, 140); (6) the book, *Understanding Extrusion*, by Dr. Rauwendaal (PTX-305); (7) United States Patent No. 4,192,617 to Spielhoff ("'617 patent") (PTX-313); and (8) DE 1954214 (ITX-I/269-354 ("Pyton AG patent"). Intertape argues that by failing to identify these prior art references in its Rule 50(a) motion, Berry forfeited any arguments made in reliance on those references for purposes of its Rule 50(b) motion.

Rule 50(a)(2) requires that a motion for judgment as a matter of law "specify the judgment sought and the law and the facts on which the moving party is entitled to

judgment." Because a Rule 50(a) motion made at the close of the evidence must be brought before the court may consider a renewed motion under Rule 50(b), issues not adequately raised in a Rule 50(a) motion may not be included in a Rule 50(b) motion. *Laborers' Pension Fund v. A & C Envtl., Inc.*, 301 F.3d 768, 775-76 (7th Cir. 2002); *see also* Fed. R. Civ. P. 50(a)(2) committee note (1996 amend.) ("Because the Rule 50(b) motion is only a renewal of the pre-verdict motion, it can be granted only on grounds advanced in the pre-verdict motion."); *i4i Ltd. P'Ship v. Microsoft Corp.*, 598 F.3d 831, 845 (Fed. Cir. 2010), *aff'd*, 131 S.Ct. 2238 (2011) ("[A] party must file a pre-verdict JMOL motion on all theories, and with respect to all prior art references, that it wishes to challenge with a post-verdict JMOL."); *Duro-Last, Inc. v. Custom Seal, Inc.*, 321 F.3d 1098, 1107 (Fed. Cir. 2003) (finding "Duro-Last's Rule 50(a) motion on inequitable conduct was not sufficient to alert Custom Seal to all the alleged deficiencies in its obviousness defense"). The purpose of the rule is to afford the opposing party an opportunity to cure any defect in its case before the jury deliberates. *Petit v. City of Chicago*, 239 F.Supp.2d 761, 777 (N.D. Ill. 2002) (citing *Laborers' Pension Fund*, 301 F.3d at 777). Strict application of the rule is not required, however, where "previously presented arguments (in an earlier Rule 50(a) motion, in trial briefs, in motions in limine, on summary judgment, or otherwise) have made the moving party's position clear for the court and opposing party." *Id.* (citing *Laborers' Pension Fund*, 301 F.3d at 777-78); *Urso v. United States*, 72 F.3d 59, 61 (7th Cir. 1995)).

Unlike the parties in *i4i* and *Duro-Last*, Berry orally moved for judgment as a matter of law under Rule 50(a) on obviousness. Berry's expert, Dr. Eldridge Mount III,

testified at length on November 12 and 13, 2014, regarding his opinions on anticipation and obviousness, matching prior art to the asserted claims. Berry's argument on its Rule 50(a) motion presented on November 14, 2014, incorporated the prior art references and contentions presented by Dr. Mount:

> Regarding the dispute or the argument that this is a process patent, *as we went through in some detail*, the process steps are clearly taught *in a number of references*. . . .
>
> We have now confirmed – it's not in dispute – that all of the spindles were actually prior art in PREs for compounding elastomers, which renders these claims invalid for obvious [sic] and anticipated [sic], as Dr. Mount went through.
>
> There's no evidence rebutting Dr. Mount's testimony that they're all used in their ordinary course, intended use, no unexpected results.

(*See* 11/14/2014 Rule 50 Tr. at 6-7) (emphasis added).

Ironically, Intertape's own Rule 50(a) motion on obviousness, made the day before Berry's, also relied on the testimony of Dr. Mount. Intertape argued that Berry's only evidence of a motivation to combine prior art references came from Dr. Mount, "and that cannot rise to the level of clear and convincing evidence." (Filing No. 409, 11/13/2014 Rule 50 Tr. at 13). Dr. Mount's opinion on obviousness was based on the same prior art as his opinion on anticipation. (*Id.* at 11 (specifically discussing prior art relied upon by Dr. Mount for purposes of anticipation as the '447 patent, the Sekisui patent, PTX-37, and PTX-140); *see also* Mount Tr. at 170 (testifying that the claims of the '416 patent would either be anticipated and/or obvious based on the prior art)). The basis of Berry's Rule 50(a) motion was therefore no surprise to Intertape. Accordingly, the court finds that Berry did not waive argument on the prior art identified by Dr.

Mount as supporting his opinion on obviousness. However, as the central issue of this motion centers on the motivation to combine references, the primary reference relied upon by Berry is the '447 patent. Thus, much of Intertape's objection is moot.

IV. Merits

A claimed invention is unpatentable "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103. Obviousness is a conclusion of law based on the following factual determinations: (1) the scope and content of the prior art, (2) the differences between the claims and the prior art, (3) the level of skill in the art, and (4) where relevant, objective evidence of non-obviousness, i.e., the secondary considerations. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)). Relevant secondary considerations include commercial success, long-felt but unsolved needs, failure of others, and unexpected results. *Id.*; *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995).

A party seeking to invalidate a patent on the basis of obviousness must "demonstrate 'by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.'" *Procter & Gamble Co. v. Teva Pharm. USA, Inc.*, 566 F.3d 989,

994 (Fed. Cir. 2009) (quoting *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007)). "The Supreme Court has warned, however, that, while an analysis of any teaching, suggestion, or motivation to combine known elements is useful to an obviousness analysis, the overall obviousness inquiry must be expansive and flexible." *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Lit.*, 676 F.3d 1063, 1069 (Fed. Cir. 2012) (citing *KSR*, 550 U.S. at 419).

A. The Prima Facie Case

Obviousness is "determined from the vantage point of a hypothetical person having ordinary skill in the art to which the patent pertains." *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Therefore, the court begins its analysis by defining that person.

1. Person of Ordinary Skill in the Art

The person of ordinary skill in the art is presumed to be aware of all the pertinent prior art. *Id*. This hypothetical person "'thinks along the lines of conventional wisdom in the art and is not one who undertakes to innovate. . . .'" *Endress + Hauser, Inc. v. Hawk Measurement Sys. Pty. Ltd.*, 892 F. Supp. 1107, 1120 (S.D. Ind. 1995) (quoting *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 454 (Fed. Cir. 1985)); *see also KSR*, 550 U.S. at 421 ("A person of ordinary skill is also a person of ordinary creativity . . . ."); *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986) (a person of ordinary skill is not a genius in the art) (internal quotation marks and citation omitted). The actual inventor's skill and experience is not determinative. *Custom Accessories*, 807 F.2d at 962.

At trial, Berry's expert, Dr. Mount, defined the person of ordinary skill as:

> a chemist or a mechanical engineer or a chemical engineer, say, an undergraduate chemist; engineer, mechanical or chemical; and who has three to five years of experience in extrusion and extrusion compounding technology. Or it could be a person with an advanced degree, a master's degree and a Ph.D. in a related science, could be physics or engineering or something like that and also the three to five years of experience in extrusion and extrusion compounding.

(Filing No. 399, Mount Tr. at 13). Intertape argues Berry waived argument on this issue because: (1) it did not raise the issue in its Rule 50(a) motion and (2) Dr. Mount's opinion on the level of ordinary skill was conclusory. Intertape's objection is a moot point, as Intertape's expert, Dr. Chris Rauwendaal, did not provide a contrary definition. On this subject, he testified as follows:

> Q: Well, a person of ordinary skill in the art at this time is an engineer; they've been trained with polymers; they understand polymers; they understand extrusion technology and compounding applications, right, sir?
>
> A: I would agree with that.
>
> ***
>
> Q: And they would have an engineering degree such as mechanical engineering or chemical engineering, correct?
>
> A: That would be fine with me.
>
> Q: Okay. And they would have at least three to five years' experience in extrusion and extrusion compounding applications, correct?
>
> A: Yeah, that's fine.

(Rauwendaal Tr. at 152-53). Accordingly, because the level of ordinary skill in the art was not contested, the issue is properly before the court.

2. Scope and Content of the Prior Art and the Differences Between the Prior Art and the Claims at Issue

As alluded to above, the Beiersdorf '447 patent, issued on January 14, 2003, is prior art to the '416 patent. Like the '416 patent, the '447 patent discloses a process for the continuous production of self-adhesive formulations using non-thermoplastic elastomers and other components in a PRE, homogenizing that adhesive, discharging it, and coating it onto a web-form material. (*See* '447 patent, claim 1). Claim 1 claims that this process is "mastication-free." (*Id*.). With respect to planetary spindles, the '447 patent explains, "Of course, any roll cylinder can be equipped differently in terms of the number and nature of the planetary spindles and so can be adapted to the particular formulation and processing requirements." ('447 patent, col. 8, ll:13-16).

The Sekisui Japanese patent application, filed on August 10, 1999, is also prior art. It discloses a method for the continuous production of a rubber-based adhesive on a PRE with several compounding sections and multiple spindles, similar to the '416 patent. (PTX-264; *see also* Rauwendaal Tr. at 166 ("Q: And you would agree that this teaches one of ordinary skill in the art that they can use non-thermoplastic elastomers, feeding those with tackifying resins into a feeding section of a [PRE], conveying those materials from the feeding section to the compounding section, mixing those materials in the compounding section where oils or other secondary materials are added to the formulation, correct? A: I believe that's correct.")).

Dr. Rauwendaal testified that each of the processing steps of independent claims 1 and 21 of the '416 patent are taught in the '447 patent and the Sekisui reference with

the exception of the claimed back-cut spindle. (Rauwendaal Tr. at 119, 139, 160-61; *see also* Tynan Tr. at 222; St. Coeur Tr. at 66-67; Kovach Tr. at 46-48).

The "DIK Paper,[4]" given by Michael Batton of Entex in Hannover, Germany, on March 23, 2003, is also prior art to the '416 patent. (PTX-37). It discloses that a PRE can be used to compound rubber-based formulations. (*Id.*, Fig. 20; Rauwendaal Tr. at 170; Mount Tr. at 62). It also discloses an exemplary process diagram, (PTX-37-12), stating that a PRE can be fed with rubber, resin and other constituents simultaneously, and especially mentions that the modular PRE system allows "compounding of materials which are difficult to disperse or homogenize, as for example recycled materials, adhesives, caoutchoucs, etc." (PTX-37-15; Rauwendaal Tr. at 171). And it discloses that such a system could be set up with spindles satisfying claim 1, such as the Noppenspindel. (PTX-37-16, Fig. 20; Mount Tr. at 68-69, 143; *see also* Rauwendaal Tr. at 171 (testifying that the DIK Paper discloses a PRE modular design to manufacture adhesives and discloses the claimed spindle)).

[4] Intertape objects to the admission of the DIK Paper because, it contends, Berry did not provide independent corroborating evidence for the status of the document as prior art. The corroboration requirement applies to witness testimony, not documentary prior art. *Adenta GmbH v. OrthoArm, Inc.*, 501 F.3d 1364, 1371-72 (Fed. Cir. 2007) ("We have held that a patent cannot be invalidated based on one person's testimony alone without corroborating evidence, particularly documentary evidence."). Here, Batton, testified that he disseminated the DIK Paper during a presentation he gave in Hanover, Germany in March of 2003. (Batton Tr. at 26). The DIK Paper is dated ("24.03.2003") and its author is Harold Rust of Entex. (PTX-37). Batton explained that Rust's name was on the Paper because he was originally scheduled to do the presentation, but because it was to be presented in English (as opposed to German), he asked Batton to step in for him. (*Id.*). The court therefore finds the DIK Paper is corroborated by Batton's testimony and the date on the cover on the Paper. *In re Morsa*, 713 F.3d 104, 109 (Fed. Cir. 2013) (printed date was substantial evidence to support prior art date).

There is, therefore, no dispute that the PRE and the claimed back-cut spindle were prior art to the '416 patent. (*See, e.g.*, Filing No. 356, Stipulations as to the Claim Elements at Issue at 2).

There is one additional prior art reference the court will discuss – the Entex '098 patent. (PTX-291, PTX-473 (English translation)). The Entex '098 patent, published on September 22, 1994, "relates to a planetary roller extruder with a central spindle and rotating planetary spindles. . . ." (PTX-473 at 1). The planetary spindles are referred to as porcupine spindles due to the shape of the spindle's "teeth." (*See generally id*.). The patent discloses the advantage of a spindle having porcupine teeth – "to achieve better dispersion and better material breakdown." (*Id*. at 1). This particular application is for the use or manufacture of powder coatings or the processing of polyolefins. (*Id*. at 3). The '416 patent gives examples of back-cut spindles; a porcupine spindle (or Igelspindel) is one such example. ('416 patent, col. 4, ll:33-34).

3. Motivation to Combine References

Having determined that both the Beiersdorf '447 patent and the claimed spindle were in the prior art at the time of the invention, the court next turns to whether a person of ordinary skill in the art would have been motivated to combine the teachings in the prior art with the claimed spindle to achieve the '416 patent, and whether there was a reasonable expectation of success in doing so. The motivation to combine may be found in the references sought to be combined and from "any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself." *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356,

1361 (Fed. Cir. 2006) (citation omitted); *In re Rouffet*, 149 F.3d at 1357 (noting three possible sources for a motivation to combine references: "the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art"). Whether there is a reason to combine references is a question of fact. *McGinley v. Franklin Sports, Inc*., 262 F.3d 1339, 1355 (Fed. Cir. 2001).

Berry's Rule 50 motion centers on the Beiersdorf '447 patent's "of course" language; specifically, "Of course, any roll cylinder can be equipped differently in terms of the number and nature of the planetary spindles and so can be adapted to the particular formulation and processing requirements." ('447 patent, col. 8, ll:13-16). On cross examination, Berry's counsel asked Dr. Rauwendall whether one of skill in the art at the time of the alleged invention of the '416 patent would understand from the Beiersdorf patent's "of course" language that he or she could select the claimed spindle from any of the existing spindles, depending on his or her particular formulation and processing requirements. (Rauwendaal Tr. at 149-151). Dr. Rauwendaal responded, "I think a person with ordinary skill would understand that whatever spindles are available could be used." (*Id*. at 151; *see also id.* at 162 ("A person knowing what was available would know that [the claimed spindle] was one of the options that could be considered.")).

Dr. Rauwendaal's admission does not establish that one of ordinary skill in the art at the time of the invention would have been motivated to *combine* the teaching of the Bieresdorf '447 patent with the claimed spindle.

> That all elements of an invention may have been old (the normal situation), or some old and some new, or all new, is however, simply irrelevant. Virtually all inventions are combinations and virtually all are combinations of old elements. A court must consider what the prior art as a whole would have suggested to one skilled in the art.

Envtl. Designs, Ltd. v. Union Oil Co. of California, 713 F.2d 693, 698 (Fed. Cir. 1983) (citation omitted); *see also KSR*, 550 U.S. at 418 ("[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art."); *Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 411 F.3d 1332, 1338 (Fed. Cir. 2005) ("[S]imply identifying all of the elements in a claim in the prior art does not render a claim obvious.").

Intertape argues that one of ordinary skill in the art would not have been motivated to combine the teachings of the '447 patent and the '416 patent because the '447 patent taught away from using the claimed spindle to process non-thermoplastic elastomers. Teaching away is a corollary principle to the motivation to combine references. *KSR*, 550 U.S. at 416. A reference teaches away "'when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.'" *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (quoting *Ricoh Co., Ltd. v. Quanta Computer, Inc.*, 550 F.3d 1325, 1332 (Fed. Cir. 2008)). "A reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not 'criticize, discredit, or otherwise discourage' investigation into the invention claimed." *Id.* (quoting *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004)). Whether a reference

teaches toward or away from the claimed invention is a question of fact. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2007).

The Beiersdorf '447 patent describes known processes for the production of pressure-sensitive adhesives and concludes that these processes, all of which are based on a twin-screw extruder and include a mastication step, "are characterized by extremely severe rubber breakdown." (*See generally id.*, col. 3, ll: 27 – col., 4, ll: 65). The patent distinguishes those known production processes from the one disclosed therein:

> Unlike otherwise conventional production processes, in the planetary roll[er] extruder in accordance with the process of the present invention, in particular, there is no property-impairing mastication of the non-thermoplastic elastomers, since in this case they are not subjected separately to the effect of high shear energy but instead are always processed together with one or more liquid components.

(*Id*., col. 7, ll: 21-27). Claim 1 of the Bieresdorf patent thus claims a "mastication-free" process for the production of rubber-based, self-adhesive compositions in a PRE. On this subject, Dr. Rauwendaal opined:

> [T]he '447 patent very specifically teaches that you should avoid mastication . . . when you make a natural rubber-based adhesive. And the '416 patent teaches something quite different; it teaches the use of this double-transversal spindle that is specifically designed to increase mastication and to increase mixing. So what the two patents teach is essentially the opposite.

(Rauwendaal Tr. at 120-21).

Berry characterizes Intertape's teaching-away argument as a "red herring" because mastication is not a *claimed* element of independent claims 1 and 21. *See Baxter Int'l, Inc. v. McGaw, Inc.*, 149 F.3d 1321, 1328 (Fed. Cir. 1998) (noting that a district "court must consider portions of prior art references which teach away from the

claimed invention"); *see also* Rauwendaal Tr. at 162 (testifying that "[m]astication is not a requirement with either claim 1 or claim 21 of the '416 patent"); Mount Tr. at 225 (testifying that claims 1 and 21 are not limited to mastication; "they're limited to mixing"); Tynan Tr. at 111-12; St. Coeur Tr. at 103. The claims recite "mixing" of "primary raw materials," not mastication. (*See* '416 patent, claims 1(c) and 21(b)).

The '447's claim of a "mastication-free" process is perplexing. Based upon the court's reading of the prior art and its understanding of natural rubber's high molecular weight, the court asked counsel whether it was possible to compound rubber without masticating it during the manufacturing process. Counsel for Berry and Intertape said "no." In fact, Intertape's counsel said that some degree of mastication "has to occur."[5]

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[5] The testimony presented at trial supports counsel's statement. Tynan testified:

> Q: You believed the claims of the Beiersdorf patent to be invalid because they required mastication free, and you didn't think that was possible?
>
> A: That's correct.
>
> Q: You thought that was ridiculous?
>
> A: I did.
>
> Q: You didn't think there was any way a planetary roller extruder would take that chunk of rubber, squeeze it through all of those gears and not break down the molecular weight, right?
>
> A: I didn't think so, but I couldn't be certain. . . .

(*Id*. at 143-44). *See also id.* at 199-200 ("Q: Sir, whenever you looked at the Beiersdorf process, you saw that it was manufacturing rubber-based adhesives on a PRE. You did think that everyone knows, including Beiersdorf knows [sic] that it's impossible not to masticate on that PRE equipment; is that correct? A: I said that, yes."). In addition, Dr. Mount testified that "all of these rubber-processing machines," including the PRE, masticate rubber because rubber "is just a polymer" whose molecules must be mechanically broken. (Mount Tr. at 86). As a final note, St. Coeur testified that the data from the April 2003 Battenfeld trials "showed mastication by use of a full-flighted spindle." (St. Coeur Tr. at 60). This further undermines the '447 patent's "mastication-free" claim because a full-flighted spindle is a standard spindle, not a back-cut spindle.

According to Intertape's counsel, the '447 patent teaches the advantages of *slight* or *minimal* mastication for a better self-adhesive product through the use of a PRE. On the other hand, the '416 patent discusses the advantages of "controlled" mastication for a better self-adhesive product through the use of different types of spindles working together in a PRE. ('416 patent, col. 4, ll: 51-56 ("By adjusting the number of full flight 30 and open or double transversal spindles 28, the rate with which material passes through the planetary roller extruder and hence the amount of mastication that is done on the material can be controlled.")). "A least one" of the planetary spindles must be the claimed "double transversal mixing spindle comprising a plurality of back-cut helical flights." ('416 patent, claims 1(c) and 21(b)).

This brings the court back to the '447 patent's "of course" language. Would it have been obvious for one of ordinary skill in the art to combine a PRE with the claimed back cut spindle to process natural rubber into a workable self-adhesive? With respect to this issue of spindle selection, Dr. Rauwendaal testified on cross examination as follows:

> Q: All right. And you would agree that that one hypothetical person of ordinary skill in the art when reading this would know that it was obvious, depending on their formulation and processing requirements, of which spindles to equip their planetary roller extruder for [sic] to make rubber-based adhesives, right, sir?
>
> A: Well, I think it's a little bit more complicated than that. That person would really have to know for a particular application what might or might not be advantageous.

(Rauwendaal Tr. at 152). From that point on, Dr. Rauwendaal's testimony was problematic. Although Dr. Rauwendaal was eminently qualified to give an opinion on

spindle selection, he did not opine from the perspective of a skilled artisan who is presumed to be aware of all available prior art. (*See id*. at 152-59). Emblematic of his testimony is the following:

> Q: Okay. And that person understanding that, all those ingredients that we went through that are near verbatim between the ['447 patent and the '416 patent], that person of ordinary skill would know upon reading this very statement that they could select any prior art spindle, depending on the particular formulation and processing requirements that they were faced with, correct?
>
> A: No, I don't agree, and I explained why, because I deal with this frequently. I deal with engineers that do compounding, that make adhesives or other compound materials, and generally their understanding of what specific piece of equipment is necessary, what particular design of mixing element is necessary to achieve some result, that is not something that many engineers know how to do. And I know from personal experience working with hundreds and hundreds of engineers in this industry.

(*Id*. at 154; *see also id*. at 156 ("Well, I have a little bit of trouble with this hypothetical person. I prefer to work with reality rather than with hypotheticals."); *id*. at 158 ("You can call it a hypothetical person, but obviously when I talk about ordinary skill, I base it on my own experience in the industry. And to me that is not necessarily a hypothetical person; it's based on real experience in the industry."); *id*. at 159 ("Well, like I said, I talk about a hypothetical person with ordinary skill based on my experience. If you want to call it a hypothetical person, that's okay, but it is based on my experience in the industry.")). Because the testimony of Dr. Rauwendaal regarding spindle selection was not based on the correct legal standard, the jury was not entitled to rely on it in making its obviousness factual determination. *See Amazon.com, Inc. v. Barnesandnoble.com*, 239 F.3d 1343, 1364 (Fed. Cir. 2001) ("Whatever [Barnesandnoble.com's expert] Dr.

Lockwood did or did not *personally* realize at the time based on his actual knowledge is irrelevant. The relevant inquiry is what a hypothetical ordinarily skilled artisan would have gleaned from the cited references at the time that the patent application leading to the [] patent was filed.").

The only other expert opinion on this subject was from Dr. Mount:

> Q: What is your expert opinion as to what that [the '447's "of course" language] discloses to one of ordinary skill in the art?
>
> A: Well, to one of ordinary skill in the art, that says that if I want to change the processing of the adhesive because I'm dissatisfied with it or I'm changing the formulation, I can modify the equipment and operate it differently by changing both the number and nature of the planetary spindles, the nature of the spindles representing the shape. So you can change the type of spindle, and this would include all of the prior art spindles that were available. It says you can go get any prior art spindle that you can find, and if I need to change the mixing or to improve the homogeneity of the adhesive, I simply have to pick and choose and do some experimentation to modify it based upon any changes in the formulation or the type of rubber or the other components of the adhesive.
>
> Q: Do you believe that this disclosure would have informed one of ordinary skill in the art of the actual use of the claimed spindle in the '447 process?
>
> A: Yes, I believe so; it was a prior art spindle.

(Mount Tr. at 31-32). *See also id.* at 144 (one of skill in the art would know to "change the spindles to improve the mixing to get better homogeneity"); *id.* at 144-45 ("Q: What would one of ordinary skill in the art, in your opinion, do if they started with a formulation and all Noppenspindels, and the formulation was overworked? What might that person do with respect to spindle selection? A: Sure. Well, if we have too much resident time, too much mixing and you've maybe degraded the polymer more than you

want so it's too viscous, you now want to work it less, so you take out the high-work spindles and put in the low-work spindles, the standard spindles."); *id.* at 149-50 ("[I]t would be obvious to use the Noppenspindel as a prior art spindle because it's available . . . to use . . . and it would be obvious to choose because it changes the mixing behavior.").

The court's analysis is not limited to the prior art '447 patent. *Medichem*, 437 F.3d at 1165 (stating that "obviousness must be determined in light of all the facts," including all of the relevant prior art). Entex's DIK Paper specifically discusses the use of a PRE to compound elastomer masses, including caoutchouc (natural rubber), and discloses the same three spindles disclosed in the '416 patent – the Planetspindel (also known as the full flight or standard spindle), the Igelspindel, and the Noppenspindel. (PTX-37 at 2). Dr. Rauwendaal testified to this fact. (Rauwendaal Tr. at 171) ("Q: Sir, then you would agree that PTX-37 discloses using a planetary roller extruder modular design to manufacture adhesives and also discloses spindles that fall within the claimed spindles of the '416 patent, right? A: It shows the Noppenspindel, that is correct."). Entex's '098 patent also discloses the use of a PRE with a back cut Igelspindel to process powder coatings. (PTX-473). It teaches that in order to avoid degradation of the polymer, one may modify the processing time by strategically combining an Igelspindel with standard spindles. (*Id.* at PTX-473-2; Mount Tr. at 79-80).

After considering the prior art in its totality, the court finds a person of ordinary skill in the art would have been motivated to combine the Beiersdorf PRE system with the claimed back-cut spindle. The problem with the twin screw extruder to process

natural rubber was its propensity to generate too much heat, resulting in severe rubber breakdown. (Kovach Tr. at 14; Tynan Tr. at 32-33; *see also* '447 patent, col. 4, ll: 59-65). The novelty of the PRE system to process natural rubber was its tremendous mixing and thermal-exchange capabilities. (Tynan Tr. at 41, 43; '447 patent, col. 7, ll: 36-40 ("Furthermore, planetary roller extruders have extremely large surface areas where material exchange and surface renewal take place, by which means it is possible to dissipate rapidly the frictional shear energy and thus avoid undesirably high product temperatures.")). And while the '447 patent may have counseled against "property-impairing mastication," a person of ordinary skill in the art would have recognized that some degree of mastication must occur in order to process natural rubber into an adhesive. Further, the skilled artisan would have understood that variations in tooth geometry of spindles can modify the dwell time of materials being processed, and would know that adding openings to spindle flights could provide beneficial processing properties, such as increased dispersion and material breakdown. Consequently, the skilled artisan would also know that any existing spindle, including the claimed spindle, could be used to change the processing of the adhesive in desired manners. The number and nature of the planetary spindles to conform to any particular formulation or processing requirement would be, as Dr. Mount testified, a matter of routine experimentation.

B. Secondary Considerations

The court next considers objective evidence of non-obviousness, otherwise known as the secondary considerations. Intertape asserts that Intertape's process

produces an unexpected result – a superior non-thermoplastic adhesive. Intertape, however, never identifies the closest prior art process that the claimed invention was better than, nor does it provide any comparative data to show the alleged unexpected benefits over that unnamed process. *See In re Baxter Travenol Labs*, 952 F.2d 388, 392 (Fed. Cir. 1991) ("[W]hen unexpected results are used as evidence of nonobviousness, the results must be shown to be unexpected compared with the closest prior art."). In addition, Intertape failed to provide evidence of what was unexpected about the claimed invention. The only evidence it cites is from Tynan, who testified to the benefits and the advantages of the claimed invention, but not to the unexpectedness of the results. *Pfizer*, 480 F.3d at 1371 ("Thus, in order to properly evaluate whether a superior property was unexpected, the court should have considered what properties were expected."). The court therefore finds the jury was not entitled to credit Intertape's evidence.

Intertape also asserts that Berry's alleged copying of the claimed invention shows non-obviousness. As the jury found that Berry did not infringe the '416 patent, it implicitly found no evidence of copying. The court finds no reason to upset that finding.

V. Conclusion

In sum, even assuming the jury correctly resolved the pertinent factual issues in favor of Intertape, the prior art still renders the claims of the '416 patent obvious as a matter of law. Here, both the PRE and the claimed spindle were in the prior art, and the motivation to combine the references can be found by the nature of the problem to be solved – the process for producing a non-thermoplastic elastomer with sufficient

adhesive and cohesive strength. The secondary considerations do not alter the court's result.

The court therefore **GRANTS** Berry's Renewed Motion for Judgment as a Matter of Law that U.S. Patent No. 7,476,416 is Invalid as Obvious (Filing No. 385).

SO ORDERED this 30th day of September 2015.

RICHARD L. YOUNG, CHIEF JUDGE
United States District Court
Southern District of Indiana

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